

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions of claims in the application:

**Listing of Claims:**

1. (Currently amended) A method for reducing cross-polarization interference in a wireless communication system, comprising:
  - generating first data to be transmitted from a first transmission terminal;
  - encoding the first data with a long code at the first terminal to produce a first long-encoded signal;
  - applying a first polarization to the first long-encoded signal to produce a first long-encoded, polarized signal;
  - generating second data to be transmitted from a second transmission terminal;
  - encoding the second data with the long code at the second terminal to produce a second long-encoded signal;
  - applying a second polarization to the second long-encoded signal to produce a second long-encoded, polarized signal; and
  - transmitting the first and second long-encoded, polarized signals from the first and second transmission terminals, respectively, to at least one destination.
2. (Previously presented) The method of Claim 1, further comprising:
  - orthogonalizing plural sub-channels of each of the first and second data by applying respective plural mutually distinct Walsh codes in each sub-channel.
3. (Previously presented) The method of Claim 2, wherein the orthogonalizing step includes:
  - applying different Walsh codes to different respective data originating from different respective users of the communication system.
- 4-6. (Cancelled)

7. (Currently amended) A communication method including the transmission method of Claim 1 and further comprising:

receiving the first and second long-encoded, polarized signals;

separating the first long-encoded, polarized signal from the second long-encoded, polarized signal in accordance with their respective polarizations to produce a first long-encoded communication signal and a second long-encoded communication signal; and

applying the long code to the first and second long-encoded communication signals to produce the first and second data.

8. (Previously presented) A method of demodulating first data transmitted from a first transmission source and second data transmitted by a second transmission source, the first data transmitted as a first long-encoded, polarized communication signal having a first polarization and the second data transmitted as a second long-encoded, polarized communication signal having a second polarization, the method comprising:

receiving the first and second long-encoded, polarized communication signals;

separating the first long-encoded, polarized communication signal from the second long-encoded, polarized communication signal in accordance with their respective polarizations to produce a first long-encoded communication signal and a second long-encoded communication signal;

applying a long code to the first and second long-encoded communication signals to produce first and second decoded signals;

applying a first orthogonal code to the first decoded signal to produce the first data; and

applying a second orthogonal code to the second decoded signal to produce the second data.

9-12. (Cancelled)

13. (Previously presented) A communication method including the demodulating method of Claim 8 and further comprising:

encoding the first data with the long code at the first transmission source to produce the first long-encoded communication signal;

applying the first polarization to the first long-encoded communication signal to produce the first long-encoded, polarized communication signal;

encoding the second data with the long code at the second transmission source to produce the second long-encoded communication signal;

applying the second polarization to the second long-encoded communication signal to produce the second long-encoded, polarized communication signal; and

transmitting the first and second long-encoded, polarized communication signals from the first and second transmission sources, respectively, to at least one destination at which the demodulating method is performed.

14. (Cancelled)

15. (Currently amended) A computer-readable storage medium having computer usable instructions stored thereon for execution by a processor to perform a method comprising:

encoding first data with a long code at a first terminal to produce a first long-encoded signal;

applying a first polarization to the first long-encoded signal to produce a first long-encoded, polarized signal;

encoding second data with the long code at a second terminal to produce a second long-encoded signal;

applying a second polarization to the second long-encoded signal to produce a second long-encoded, polarized signal; and

transmitting the first and second long-encoded, polarized signals from the first and second terminals, respectively, to at least one destination.

16. (Cancelled)

17. (Previously presented) A computer-readable storage medium having computer usable instructions stored thereon for execution by a processor to perform a method comprising:

- receiving first and second long-encoded, polarized communication signals;
- separating the first long-encoded, polarized communication signal from the second long-encoded, polarized communication signal in accordance with their respective polarizations to produce a first long-encoded communication signal and a second long-encoded communication signal;
- applying a long code to each of the first and second long-encoded communication signals to produce first and second decoded data;
- applying a first orthogonal code to the first decoded signal to produce the first data; and
- applying a second orthogonal code to the second decoded signal to produce the second data.

18. (Previously presented) A system configured to reduce cross-polarization interference, comprising:

- a first terminal, comprising:
  - a first data generator for generating first data;
  - a first long code generator for generating a long code;
  - a first mixer for encoding the first data with the long code to produce a first long-encoded signal; and
  - a first polarizer for applying a first polarization to the first long-encoded signal to produce a first long-encoded, polarized signal;
- a second terminal, comprising:
  - a second data generator for generating second data;
  - a second long code generator for generating the long code;
  - a second mixer for encoding second data with the long code to produce a second long-encoded signal; and
  - a second polarizer for applying a second polarization to the second long-encoded signal to produce a second long-encoded, polarized signal; and
  - a transmitter for transmitting the first and second long-encoded, polarized signals from the first and second terminals, respectively, to at least one destination.

19. (Cancelled)

20. (Currently amended) A receiver, comprising:

- an antenna for receiving first and second long-encoded, polarized communication signals;
- an ortho-mode transducer for separating the first and second long-encoded, polarized communication signals based on their respective polarizations to produce a first long-encoded communication signal and a second long-encoded communication signal;
- a first mixer for applying a long code to the first long-encoded communication signal to produce a first decoded communication signal;
- a second mixer for applying ~~[[a]]~~ the long code to the second long-encoded communication signal to produce a second decoded communication signal;
- a third mixer for applying a first orthogonal code to the first decoded signal to produce the first data; and
- a fourth mixer for applying a second orthogonal code to the second decoded signal to produce the second data.

21. (Previously presented) A transmission system comprising:

- means for encoding first data with a long code at a first terminal to produce a first long-encoded signal;
- means for applying a first polarization to the first long-encoded signal to produce a first long-encoded, polarized signal;
- means for encoding second data with the long code at a second terminal to produce a second long-encoded signal;
- means for applying a second polarization to the second long-encoded signal to produce a second long-encoded, polarized signal;
- means for transmitting the first long-encoded, polarized signal to a receiver; and
- means for transmitting the second long-encoded, polarized signal to the receiver.

22. (Previously presented) The system of Claim 21, further comprising:  
means for orthogonalizing the first data; and  
means for orthogonalizing the second data.
23. (Previously presented) The system of Claim 22, wherein each of the means for orthogonalizing comprises:  
means for applying different Walsh codes to different respective data originating from different respective users of the transmission system.
24. (Cancelled)
25. (Previously presented) A communication system including the transmission system of Claim 21 and further comprising:  
means for receiving the first and second long-encoded, polarized communication signals;  
means for separating the first and second long-encoded, polarized communication signals based on their respective polarizations to produce a first long-encoded signal and a second long-encoded signal, respectively; and  
means for applying the long code to the received first and second long-encoded communication signals to produce the first and second data;  
means for applying a first orthogonal code to the first decoded signal to produce the first data; and  
means for applying a second orthogonal code to the second decoded signal to produce the second data .

26. (Currently amended) A receiver for demodulating first and second long-encoded, polarized communication signals transmitted from respective first and second transmission sources, the receiver comprising:

means for receiving the first and second long-encoded, polarized communication signals;

means for separating the first long-encoded, polarized communication signal from the second long-encoded, polarized communication signal in accordance with their respective polarizations to produce a first long-encoded communication signal and a second long-encoded communication signal;

means for applying a long code to the long-encoded communication signals to produce a first decoded communication signal;

means for applying [[a]] the long code to the second long-encoded communication signal to produce a second decoded communication signal;

means for applying a first orthogonal code to the first decoded communication signal to produce the first data; and

means for applying a second orthogonal code to the second decoded communication signal to produce the second data.

27-28. (Cancelled)

29. (Currently amended) A communication system, including the demodulating system of Claim 26 and further comprising:

means for encoding first data with [[a]] the long code at a first terminal to produce a first long-encoded signal;

means for applying a first polarization to the first long-encoded signal to produce a first long-encoded, polarized signal;

means for encoding second data with the long code at a second terminal to produce a second long-encoded signal;

means for applying a second polarization to the second long-encoded signal to produce a second long-encoded, polarized signal;

means for transmitting the first long-encoded, polarized signal from the first terminal to a receiver; and

means for transmitting the second long-encoded, polarized signal from the second terminal to the receiver.

30. (Cancelled)